IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) An anode assembly ~~(17)~~ for conducting electrical energy to an anode ~~(22)~~ of an electrolytic smelting cell, comprising:

an anode bar ~~(20)~~ of a highly ~~high~~ electrically conductive material [[,]] ;

a yoke ~~(21)~~ electrically connected to said anode bar ~~(20), and~~ ;

anode stubs ~~(22)~~ fitted to ~~the~~ ends of said yoke ~~(21)~~, said yoke comprising a core ~~(29)~~ of a highly electrically and thermally conductive material; and

an outer structural sheath ~~(30)~~ extending at least over ~~the~~ ends of said core ~~(29)~~,

wherein said outer structural sheath ~~(30) having~~ has substantially the same thermal expansion characteristics as the core over ~~the~~ an operating range of temperatures of said anode assembly, and the core and the outer structural sheath are in thermal and electrical contact over substantially the entire length of the outer structural sheath.

2. (Currently Amended) The anode assembly of claim 1, wherein a high thermal and electrically conductive contact is maintained between the core and the sheath over the operating range of temperatures of said anode assembly.

3. (Currently Amended) The anode assembly of claim 1 or 2, wherein the core ~~(29)~~ is produced from a metal having electrical and thermal conductivities in the ranges of 5-70 (1/μΩm) and 84-400 W/mK, respectively.

4. (Currently Amended) The anode assembly of claim 3, wherein the core ~~(29)~~ and sheath ~~(30)~~ are produced from a combination of metals whose differential coefficient of thermal expansion does not exceed 4 x 10^{-6} m/mK.

5. (Currently Amended) The anode assembly of claim 3, wherein the core ~~(29)~~ is produced from a material selected from the group consisting of high purity, ~~aluminium~~ aluminum, copper and nickel.

6. (Currently Amended) The anode assembly of claim 4, wherein the sheath ~~(30)~~ is produced from a material selected from the group consisting of austenitic stainless steel, ~~or~~ ferritic stainless steel ~~steels~~, spheroidal graphite iron and carbon steel.

7. (Currently Amended) The anode assembly according to claim 1, wherein the yoke ~~(21)~~ is substantially U-shaped and the outer protective sheath ~~(30)~~ extends substantially the length of said core.

8. (Currently Amended) The anode assembly according to claim 1, wherein the outer structural sheath has substantially the same thermal expansion characteristics as the stubs over the operating range of temperatures of the anode assembly.

9. (Currently Amended) The anode assembly according to claim 1 or 8, wherein the ends of the yoke ~~(21)~~ are tapered~~,~~ and the anode stubs ~~being~~ are provided with a tapered bore ~~for receiving~~ adapted to receive the tapered ends of said yoke.

10. (Currently Amended) The anode assembly according to claim 7, wherein the anode bar comprises a main anode stem and an auxiliary anode stem, and the auxiliary stem ~~extending~~ extends substantially the length of the structural collar of the anode bar.

11. (Currently Amended) The anode assembly of claim 10, wherein the auxiliary anode stem and the main anode stem are secured together, the auxiliary anode stem ~~being~~ is sealed within the outer protective collar and the main anode stem ~~extending,~~ extends from said collar for connection to an anode bus bar.

12. (Currently Amended) The anode assembly according to claim 1, wherein an air gap or an insulating plug is maintained in the bore of said anode stub below said yoke when the yoke is pressed into said stubs.

13. (Currently Amended) The anode assembly according to claim 1, wherein the outer sheath of the yoke and the protective collar are formed from a high temperature structural austenitic steel.

14. (Currently Amended) A method of forming an anode assembly comprising: ~~the steps of~~

forming a yoke ~~(21)~~ having a ~~high~~ highly electrically and thermally conductive core ~~(29) and~~ ;

forming an outer structural sheath ~~(30)~~ extending at least over ~~the~~ ends of said core ~~(29)~~, said outer structural sheath ~~(30)~~ having substantially ~~the~~ a same thermal expansion characteristics as said core ~~(29)~~ over ~~the~~ an operating range of temperatures of said anode assembly~~,~~ ;

forming a groove in said yoke~~, and~~ ; and

connecting an anode bar ~~(20)~~ of highly electrically conductive material to said yoke ~~(21)~~ such that said anode bar is in electrical contact with the core ~~(29)~~ of said yoke ~~(21)~~.

15. (Currently Amended) The method of claim 14, wherein the core is produced from a material having electrical and thermal conductivities in the ranges of 5-70 ($1/\mu\Omega m$) and 80-400 W/mK respectively.

16. (Currently Amended) The method of claim 14 ~~10~~, wherein the yoke is formed in a substantially U-shaped configuration and the outer structural sheath of the yoke extends substantially the length of said core.

17. (Currently Amended) The method of claim 16, further comprising ~~including the step of~~ securing a structural collar to the outer structural sheath of said yoke such that the anode bar extends through said collar.

18. (Currently Amended) The method of claim 17, wherein the outer protective collar surrounding said anode rod is sealed.

19. (Currently Amended) The method claim 18, wherein the yoke is initially pressed into protective anode stubs~~,~~ and said stubs are ~~being~~ able to be pressed into recesses formed in the anode where the anode assembly is press fitted into said anode.

20. (Currently Amended) The method of claim 19, further comprising:

forming a taper ~~wherein a taper is formed~~ in the ends of the yoke to compliment a tapered bore formed in the anode stubs, and

securing the stubs ~~being secured~~ to the ends of the yoke by press forming the ends into the anode stubs.

21. (Currently Amended) The method of claim 20, wherein the anode stubs are provided with a plug and an insulating disc between the plug and the ends of the yoke when the yoke is pressed into the anode stubs.

22. (Currently Amended) The method of claim 20, wherein an air gap exists between the ends of the lower most part of the stubs when the yoke is pressed into the anode stubs.

23. (Currently Amended) The method of claim 13, wherein the core and the sheath are produced from a combination of materials whose differential co-efficient of thermal expansion does not exceed 4×10^{-6} m/mK.

24. (Currently Amended) An anode assembly ~~(17)~~ for conducting electrical energy to an anode of an electrolytic smelting cell, comprising:

an anode bar ~~(20)~~ of high electrically conductive material [[,]] ;

a yoke ~~(21)~~ comprising a core ~~(29)~~ of a highly electrically and thermally conductive material, said core being electrically and thermally connected to said anode bar, and said yoke ~~(21)~~ being received within anode stubs ~~(22)~~ which are receivable within recesses formed in an anode block,

wherein said yoke is in thermal and electrical contact over substantially the entire length of the stub and said yoke ~~(21)~~ and said stubs ~~(22) having~~ have substantially the same thermal expansion characteristics over the operating range of temperatures of said anode assembly.

25. (Currently Amended) The anode assembly of claim 24, wherein the core ~~(29)~~ is produced from a metal having electrical and thermal conductivities in the ranges of 5-70 ($1/\mu\Omega m$) and 80-400 W/mK respectively.

26. (Currently Amended) The anode assembly of claim 24, wherein the yoke ~~(21)~~ and the stubs ~~(22)~~ are produced from a combination of metals whose differential co-efficient of thermal expansion does not exceed 4 x 10^{-6} m/mK.

27. (Currently Amended) The anode assembly according to claim 26, wherein the ends of the yoke ~~(21)~~ are tapered [[,]] and the recesses in the anode stubs ~~being~~ are provided with a tapered bore ~~for receiving~~ adapted to receive the tapered ends of said yoke.

28. (Currently Amended) An anode assembly ~~(17)~~ for conducting electrical energy to an anode of an electrolytic smelting cell, comprising:

an anode bar ~~(20)~~ of a ~~high~~ highly electrically conductive material connected to a yoke ~~(21)~~, ~~the~~

wherein ends of the yoke ~~(21)~~ ~~being~~ are receivable within anode stubs ~~(22),~~ and said anode stubs ~~(22) being~~ are received within said anode~~(C)~~, and

wherein said yoke ~~(21)~~ ~~comprising~~ comprises a core ~~(29)~~ of a highly electrically and thermally conductive material and an outer structural sheath, ~~(30) characterised in that~~ the outer structural sheath ~~(30)~~ extends substantially the length of the yoke ~~(21),~~ and the ends of the yoke ~~(21) being~~ are tapered to be received within a complimentary bore in said stubs ~~(22)~~.

29. (Currently Amended) The anode assembly of claim 28, ~~further characterised by~~ wherein the anode rod ~~(20)~~ ~~being~~ is provided with a protective structural collar secured to the outer structural sheath of the yoke.

30. (Currently Amended) The anode assembly of claim 28, ~~further characterised by~~ wherein the outer structural sheath ~~(30)~~ ~~being of~~ comprises a material having substantially the same thermal expansion characteristics as the core over the operating range of temperatures of said anode assembly.

31. (Original) A smelting cell comprising an anode assembly of claim 1 or 28, and an anode beam connected to said anode assembly for conducting electrical energy to the anode bar of said anode assembly.

32. (New) An anode assembly for conducting electrical energy to an anode of an electrolytic smelting cell, comprising:

an anode bar of a highly electrically conductive material;

a substantially U-shaped yoke electrically connected to said anode bar;

anode stubs fitted to ends of said yoke, said yoke comprising a core of a highly electrically and thermally conductive material; and

an outer structural sheath extending substantially the length of said core,

wherein said outer structural sheath has substantially the same thermal expansion characteristics as the core over an operating range of temperatures of said anode assembly.

33. (New) The anode assembly according to claim 32, wherein the anode bar comprises a main anode stem and an auxiliary anode stem, and the auxiliary stem extends substantially the length of the structural collar of the anode bar.

34. (New) The anode assembly of claim 33, wherein the auxiliary anode stem and the main anode stem are secured together, the auxiliary anode stem is sealed within the outer protective collar and the main anode stem extends from said collar for connection to an anode bus bar.

35. (New) The anode assembly according to claim 32, wherein an air gap or an insulating plug is maintained in the bore of said anode stub below said yoke when the yoke is pressed into said stubs.

36. (New) The anode assembly according to claim 32, wherein the outer sheath of the yoke and the protective collar are formed from a high temperature structural austenitic steel.